WAVEMAKER

User Manual

AXIOM SOFTWARE

AXIOM SOFTWARE

WaveMaker

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USER'S MANUAL

S/N 301-25004

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Chapter 1
Introduction

Thank you for purchasing WaveMaker, the quick and easy way to create amazing LightWave animations with the click of a few buttons.

WaveMaker works with LightWave 3D, either version 2.0 or 3.0 to create stunning animations. As a matter of fact, you don't even need LightWave running on the machine with which you use WaveMaker. A LightWave scene file can be generated with WaveMaker on any machine, then you can take and render it on any Toaster-equipped machine. Certain WaveMaker functions depend on LightWave being in the same computer however.

With the click of a few buttons, you can add your logo to a scene; choose from many predefined on, hold and off motions; change backgrounds and add up to eight layers of stunning background 'elements'. A LightWave scene can then be quickly generated and rendered in LightWave.

Additional WaveMaker features allow you to generate a 9 or 16 panel 'storyboard' of any LightWave scene. And a scene sequence generator allows you to set up to 15 scenes to be consecutively rendered and saved automatically. Using this 'mini render farm' allows you to leave town for a few days (weeks?) and have your computer render all your scenes for you!

WaveMaker includes a multitude of elements that can be used behind your logos to give you that 'network look'. Changing the different options for the many elements

allows you to create an almost unlimited number of different looking elements!

Also included are all of the on, hold and off logo motions that the experts use. Of course, all of the durations for motions are entirely up to you, but we've set up default timing to get you started.

If you don't have time for creating logos the easy WaveMaker way, we can help there as well! WaveMaker includes a number of prefabricated logo treatments! Simply insert your logo and choose a prefab animation. WaveMaker does all the rest!

Still not enough time? Using WaveMaker's Smart Animation feature lets WaveMaker choose your motions and your elements. It's like an animation construction set. You're the foreman, and all you have to do is sit around and drink coffee. Let WaveMaker do all the work!

Sounds like a lot of choices doesn't it? Don't worry. WaveMaker gives you so many options that we've even included a videotape showing you what they all are! This is a great tool to show to clients so they can pick out what they want in an animation.

You'll find that WaveMaker pays for itself the first time you use it. If you've been afraid of LightWave, or even if you are a LightWave expert, WaveMaker will help to make your job simpler, faster and better.

Chapter 2
Installation

Requirements

WaveMaker will run on any Amiga computer running AmigaDOS 2.0 or greater and ARexx with at least 1 Meg of RAM and a hard drive. However, there are certain limitations pertaining to 'Chip' RAM.

You can see how much Chip RAM is available by looking at the top of your Workbench screen. You should see a number before the words 'graphics mem' (you may have to click your mouse in the Workbench window for this to show up.) This number is the amount of Chip RAM that is available. If you have no programs running and the number is below 1 million, you have only one Megabyte of Chip RAM.

If you are using WaveMaker with LightWave 3.0 on a machine with only one Meg of Chip RAM you probably won't be able to use WaveMaker and LightWave at the same time. This is because the Toaster 3.0 software takes up a large amount of Chip RAM. In this instance you can do one of two things: increase your Chip RAM with a hardware upgrade; or run WaveMaker, set up and save your scene, quit, then run the Toaster. With this last option, you'll still get the benefits of WaveMaker's great animations, but you won't get the versatility of direct WaveMaker/LightWave communication.

If you are running WaveMaker and LightWave 3.0 on an Amiga 4000 or an Amiga with 2 megs of chip ram, you should be able to run both programs at the same time

and have no Chip RAM problems.

If you are using WaveMaker with LightWave 2.0, and only one meg of chip ram, you should be able to run both programs at the same time with no Chip RAM problems as long as the Get Small project is loaded before you try using both programs at the same time. Also, ToasterPaint and/or ToasterCG should not be loaded into memory.

Hard Drive Installation

WaveMaker is not copy protected and can easily be installed on any hard drive with approximately 7 megs of storage space available.

Use the Workbench to make copies of the WaveMaker disks after completing the registration process. Make sure to put the verified originals in a safe place.

To install WaveMaker on your hard drive, simply double click on the Install program located on the main disk. You will be prompted to select the name of the location on your drive where you wish WaveMaker to be installed. The installation program will automatically create a drawer for the program and all of its associated files.

After the program is installed, an assignment must be made in order for the program to find all of its files. you will be asked if you wish the assignment to be added to your S:User-Startup file.

Chapter 3
Getting Started

Registering WaveMaker

Axiom Software uses an on-disk registration to make registration fast and easy. The first time you attempt to run WaveMaker, you will be asked to provide some information to personalize your copy of WaveMaker. When asked for your serial number, you can find it on the first page of the manual. Insert the Registration Disk when prompted to do so and the information will be recorded to the disk. S/N 301-25004

Insert Disk One when prompted so that your version of WaveMaker can be verified. When completed, please enclose the registration disk in the self addressed, stamped mailer provided and mail back to Axiom Software.

Registering your program will allow us to provide technical support and send you information on future upgrades.

Starting WaveMaker

After the registration process is completed, you will be presented with a requester informing you that the WaveMaker.config file can not be found. This is to be expected as the first time you exit the program, the config file will be written. Simply click OK to continue.

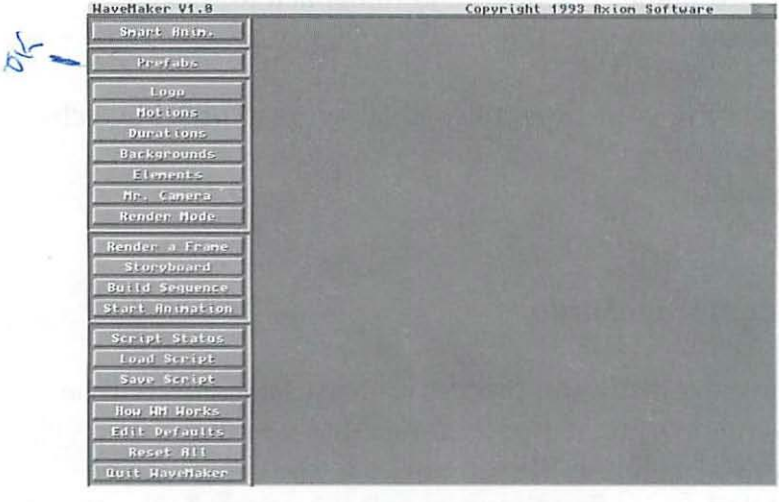
At this point you will be asked which version of

LightWave you will be using with WaveMaker. If you are unsure, you can find out by clicking on the About LightWave 3D button in LightWave. Depending on which version you choose, you will be presented with different options in certain parts of WaveMaker.

If you are using LightWave 2.0 and later upgrade to 3.0, you can simply change the version used in the Miscellaneous Defaults section (Edit Defaults) and the next time you run the program, it will know you are now using 3.0 LightWave.

Navigating the Screen

Once you have chosen your LightWave version, you will be presented with the main WaveMaker screen.



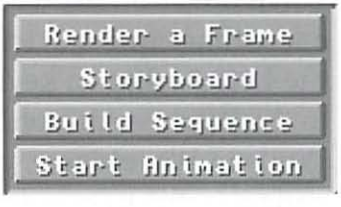
Everything is done in WaveMaker by point and click. Pull down menus and keyboard commands are not needed.

On the left hand side of the screen can be found all of the WaveMaker main menu buttons arranged in a column of six sections. For the most part, they are arranged in such a fashion that you go down the column building your animation as you go.

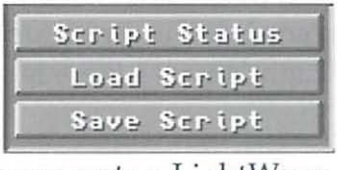
The top of the column contains the Smart Anim. and Prefab sections. These are two methods of creating animations with very little work. About all that is needed is for you to add your logo.

The third section contains the buttons necessary for building an animation from 'scratch'. In most instances, you would work down this column of buttons in order to build an animation.

The fourth section contains rendering tools that require LightWave to be running simultaneously. These include rendering animations, building storyboards and batch rendering scenes.

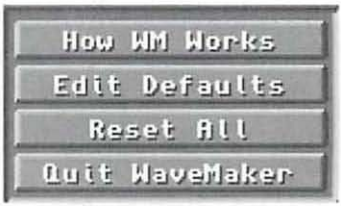


The fifth section contains script information and buttons for loading and saving scripts. A WaveMaker script contains all of the information needed in order to generate a LightWave scene file. When you save a script, WaveMaker automati-



cally generates a LightWave scene file as well.

The sixth and final section contains WaveMaker's built in mini manual, the editable program defaults and the Quit button.



General Operations

There are some basic conventions that you should be aware of with WaveMaker:

Swapping Screens

If you plan on running both WaveMaker and LightWave, it is a good idea to run WaveMaker first. It is often handy to switch back and forth between the WaveMaker and LightWave screens such as when you wish to render a wireframe preview of a WaveMaker animation. When you are in LightWave, using the standard **Left Amiga - m** keyboard shortcut will switch between LightWave and WaveMaker or vice-versa. It may be necessary to press m a few times to get to the other screen. You may also use the **Left Amiga - n** keyboard shortcut to go immediately to the Workbench from either LightWave or WaveMaker. While in WaveMaker, you can also use the front/back gadget in the upper right corner to swap screens. Also, if you hold down the Left Amiga key and click and drag anywhere on a screen with the left mouse button, you can slide the screen up and down. This is handy in LightWave as there is no front/back gadget.

Data Fields

WaveMaker uses two different types of data fields. They

are colored black and dark gray. Any text or numerals in black fields can not be edited. They are simply display fields only.

Any text or numerical values in dark gray fields may be edited. Numerical values appear centered in the dark gray fields. If you click to the left of the number, the cursor will appear on the first number. At this point, you can type in a number and hit Return or Enter. Your value will replace the value that was there.

Pressing Return or Enter will delete any value under the cursor and any values to the right of the cursor. For this reason, there is no need to delete text strings or numbers below and to the right of the cursor.

The File Requester

WaveMaker uses the standard Axiom requester. If you have other Axiom Software products, you should be familiar with this requester.

The file requester will appear whenever you wish to load or save certain files. All drawers (directories) are listed at the top of the requester in white, and files are listed below the drawers in gray. Moving the slider on the right hand side of the requester will scroll through the list of files/directories. Clicking once on a drawer name will enter that directory. If you wish to go back a directory, simply click on the **Parent** button at the

bottom of the requester.

Selecting **Volume** will present a list of all drive names and assignments in the system. Click once on any assign or drive name to enter that drive.

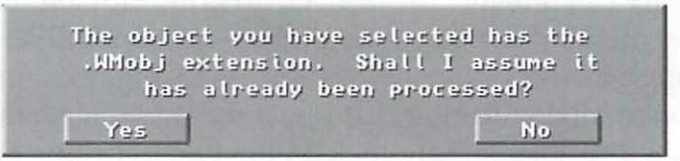
Files can be loaded or saved by either selecting the file name or typing a name in the Name field and clicking **OK** or by double clicking on the file name.

The Pattern field allows you to view specific files only using AmigaDOS standard wildcards. Let's say you wish to locate an object with a .obj extension. Typing #?.obj in the Pattern field will only show files that match this criteria. If you only wanted to see files that started with Box and ended with .obj, you would type Box#?.obj in the Pattern field.

Clicking on the **Cancel** button will exit the requester without selecting any files.

Logos

WaveMaker needs a certain size logo to fit into its scenes. When you first load a logo, WaveMaker will examine it and scale it to fit. It will not change the aspect ratio. Once scaled, WaveMaker will save the logo to the same directory with a .WMobj extension added to differentiate it. If you select a .WMobj type object to load, WaveMaker will ask if you wish it to be processed.



Chapter 4
Creating an Animation

Letting WaveMaker do the Work

WaveMaker has the ability to randomly generate an animation for you. Clicking on the **Smart Anim.** button will present the Smart Animation requester where you can choose the logo you wish to use.

The currently loaded logo (if any) is listed at the top of the requester. If you wish to use this logo, Select the **Use Current** button. If you wish to select a different logo, click on the **Select New** button. Finally, if you want to generate an animation with no logo, click on the **No Logo** button.

After selecting the logo options, click on the **Create** button to generate a WaveMaker script. WaveMaker will intelligently pick out elements and background colors. It won't give you bad choices like bright pink and yellow backgrounds with purple elements flying by.

After the script is generated, you will be asked if you wish to save the script and scene or if you wish to edit it.

If you choose to edit, you will be free to make any changes you wish to the script. When satisfied, simply

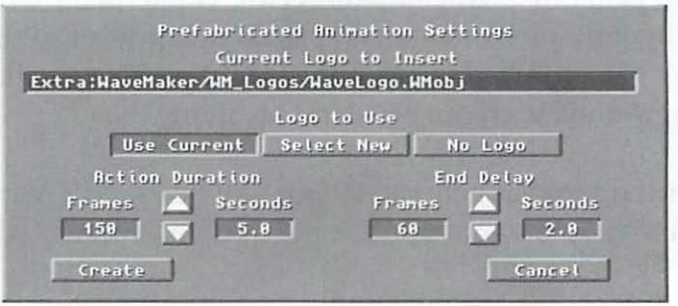
save the script and scene using the **Save Script** button.

Using the Smart Animation feature will generally create conservative animations with few element layers.

Using Prefabricated Animations

Clicking on the **Prefabs** button will present the Prefabricated Animations panel allowing you to choose predefined animations that you can insert your logo into. See the included video tape for ideas as to what all the Prefabs look like.

Clicking on any of the Prefab buttons will present the Prefab Settings requester. As with **Smart Anim.**, you can choose to use the current logo, a new logo or no logo.



Additionally, you can set the duration of the primary

action as well as the end delay (the time after the action is completed).

After selecting your logo and timing options, click on **Create** to present a file requester asking for a name for the generated scene.

Building an Animation from Scratch

The third section of buttons allows you to build an animation entirely by hand (or mouse). Creating an animation this way allows you to tell WaveMaker exactly what motions, elements, background, and duration you want your animation to have. These seven buttons are arranged in the general order in which you create animations.

Logo

The first thing you typically do is to load in a logo. Clicking on the **Logo** button will allow you to select a logo to use for your animation. If the chosen logo does not have a .WMobj extension, it will be scaled to proper size. Of course, you do not need to use a logo. Any object can work or you can generate a scene with no logo.

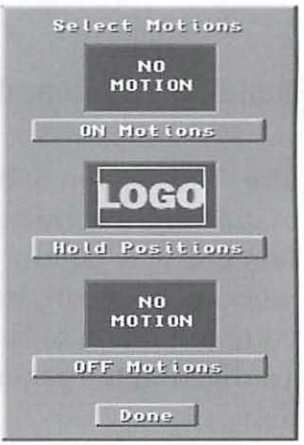
Motions

There are four different types of motion combinations that your logo may perform:

1. Logo flys on and stops (ON Motion only).
2. Logo starts already on screen and flys off (OFF

Motion only).

3. Logo flys on, holds for a moment then flys off (ON Motion, Hold Position, then OFF Motion).
4. Logo just stays put at the selected Hold Position (Hold Position only).



These different motions can be set up by choosing **Motions** from the Main Menu. This will present the Select Motions requester allowing you to choose **ON Motion, Hold Position**, or **OFF Motion**.

Choosing a motion type will reveal a screen full of different motion paths to choose from. All of these motions are included on the videotape so you can get a better feel for how they look. Simply click on the picture of the one you want, then click on **Done**. Clicking **Cancel** will return to the Select Motions requester with no change.

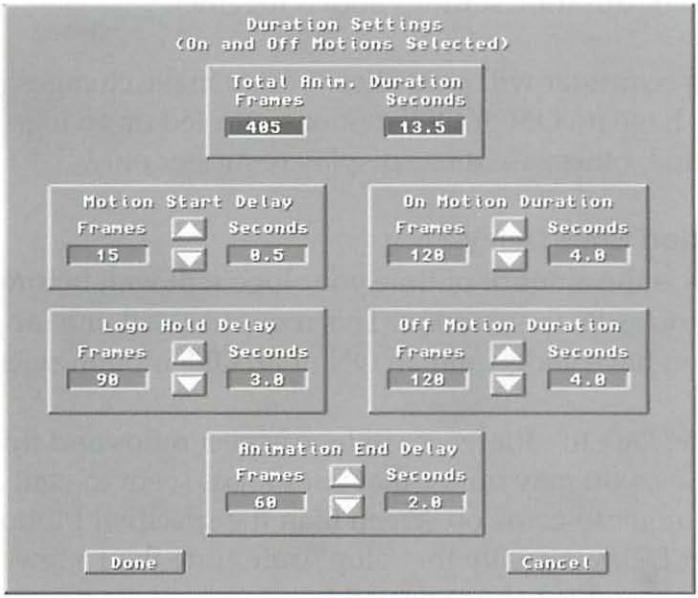
The default setting for motion is always 'No Motion'. If you have a logo selected and have not selected an ON or OFF motion, your logo will just sit still at the selected Hold Position throughout the course of the animation.

Hold Positions are of special note. These are the orientations your logo will assume at the end of a move, or the beginning of a move if only an OFF Motion is selected. If you have neither an ON or OFF Motion selected, your logo will still use the selected Hold Position.

All motions for WaveMaker use 'Ease-In' and 'Ease-Out' for smooth starts and endings to motions.

Durations

Once you have your motions selected you can let WaveMaker know how long you wish things to take by selecting the **Durations** button.



You'll get different types of duration requesters depending on the different combinations of motion types you have selected. For instance, if you have no ON and OFF motions chosen, or no logo selected, you will only have a Total Anim. Duration setting to change when you select the **Durations** button. In all of the Duration requesters, values are given in both frames and seconds. Clicking on the up and down arrow buttons will jump the values up or down in increments of 30 frames/1 second. This is handy as there are 30 frames per second in video. You can change the values in any field by clicking in it and typing a new value. The other field will be automatically updated.

Each Duration requester is explained below:

Total Anim. Duration

This requester shows the total time of the animation from start to finish. This time is equal to the time of all current duration settings added together.

This requester will only allow you to make changes if you have no ON or OFF motions selected or no logo loaded, otherwise it is a display requester only.

Motion Start Delay

This is the amount of time your logo will wait before it performs its first motion. This requester will only appear if you have a logo and an ON or an OFF motion selected.

Note: Due to differences in logo aspect ratios and thicknesses, you may notice that your logos seem to wait a little longer to come on screen than the specified Motion Start Delay. Usually this 'slop' isn't more than a few frames and is to be expected.

ON Motion Duration

This is the amount of time it takes your logo to perform the assigned ON motion. This requester only appears if you have a logo and an ON motion selected.

Logo Hold Delay

This requester only appears if you have a logo, an ON *and* an OFF motion selected. It is the amount of time between when the logo comes to a stop and when it begins to move off the screen.

OFF Motion Duration

This is the amount of time it takes your logo to perform

the assigned OFF motion. Of course, it only appears if you have a logo and an OFF motion chosen.

Animation End Delay

This requester lets you change how long the animation will keep playing after your logo has performed its final motion. This lets you keep the background elements going even after your logo has come to a stop or has left the screen. This requester only appears if you have an ON or an OFF motion selected.

Backgrounds

The background appears behind everything in your animation. It helps to think of it as an infinitely far away backdrop for your animations. It can be a solid color, a gradient spread, an image or a sequence of images.

Clicking on the **Background** button will present the Background type requester allowing you to choose the type of background you wish to use. The options are as follows:

Solid

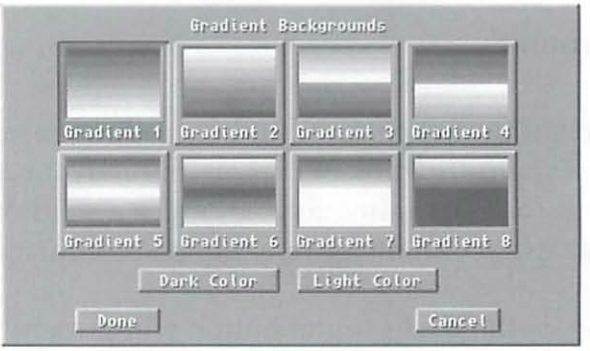
This is the default selection. If you select this, you will be given a color requester with three sliders to choose the red, green and blue values for the solid background

color. Alternately, you can click in the number fields and type in new values. Clicking on the **Reset** button will reset the values to what they were when the requester was first opened.

Gradient

If you select **Gradient**, you'll be given 8 gradient types to choose from. You can also choose the colors for the gradient by selecting the **Dark Color** and **Light Color** buttons at the bottom of the requester.

Note: WaveMaker uses LightWave's background colors



(Zenith, Sky, Ground, and Nadir) to generate your selected gradients. Because of this, you should remember that the gradients don't start exactly at the top or bottom of the screen, rather they start beyond the top and bottom of the screen. So, if you want a dark blue color at the top of your screen, you should select a really dark blue as your dark color. See the LightWave 3D manual for further explanation of LightWave's background colors.

Image

By choosing **Image**, you can select an image to be used as your background. Any image format capable of being loaded into LightWave can be used. This includes any IFF image up to and including 24 bit images as well as

Toaster 2.0 or 3.0 style Framestore images. By using an image as a background, not only can you load pictures, but you could make exactly the gradient you want in ToasterPaint or ToasterCG and load it in as a background image. You could also make background images with WaveMaker itself using the background Elements. See **Appendix C. Tips & Tricks** for more information.

There are some background images included with WaveMaker for your use. They are located in the WM_Images drawer in your WaveMaker directory.

Sequence

Selecting **Sequence** will let you specify a sequence of images to render as the background. This means that you would have a directory full of images that have the same prefix but an incrementing suffix. These images could be images from a previous WaveMaker animation that has been rendered and saved or an animation that has been saved out as separate images from an Amiga program or LightWave.

Select the **Image Sequence for Background** button to give WaveMaker the path and prefix of your sequence. Make sure that you do not include the suffix numbers of an image when you choose it in the requester otherwise LightWave will not be able to find the images when your animation is rendering, For example, if your images are named Bony.001, Bony.002, Bony.003, etc., You should enter Bony. (don't forget the period) as your file name.

LightWave will automatically increment your background images when rendering the scene. This is a very powerful feature. With it you can do multi-layer compositing, and animations that you may not be able to do

because of RAM considerations. See **Appendix C. Tips & Tricks** for more information.

When using image sequences, you also have a few options available:

Loop Sequence

Choosing this button will cause the sequence to loop back to the beginning when it encounters the **Sequence Loop Length** value. If you enter a value of 30 for the **Sequence Loop Length**, frames 1-30 of the sequence will be repeated throughout the animation.

Frame Offset

Entering a value here will cause the sequence to start on a different image other than the first. For instance, entering a value of 30 will cause image number 31 to be used as the background for frame number 1 of the animation. In general, add the first frame to be rendered to the **Frame Offset** value to determine which image of the sequence will be rendered first.

Elements

Background elements are the next ingredient in your WaveMaker animation. These elements are simply little doodads and cool objects that can appear behind your logos. All elements can move while behind your logos, and many can be told to 'sit still'.

When you select **Elements** from the main screen, you will be presented with the Element Layers panel. WaveMaker allows for up to eight separate element layers to appear behind your logos. Down the left hand side

of this panel are the numbers 1-8 representing the layers of elements. Think of layers as wallpaper. You put down layer 1 first, then layer 2, etc. Layer 1 is the furthest from the camera while layer 8 is the closest to the camera. When you select a numbered layer button, you'll be

given another panel with many different element choices. Clicking on the **A** and **B** buttons at the bottom of this panel will reveal different sets of elements. Clicking on any of the Element options will present another panel

allowing you to set certain element attributes like color, speed, direction, rotation, etc. Different element choices allow you to set different options. Some common options are listed below:

Speed

Choose **Slow, Medium** or **Fast** for the speed of some moving elements and **Very Slow, Slow, Fast** or **Very Fast** for other elements. Many elements can be given a speed setting.

Thickness

Some elements such as Streaks and Lines allow you to choose how thick they are. You can choose between **Very Thin, Thin, Fat** and **Very Fat**.

Number

Certain elements allow you to choose how many are present. Choose between **Few** and **Many**.

Color

Most elements allow you to choose from predefined colors. Your choices are **Red, Yellow, Blue, White, Shadow** or **Metal**.

One cool trick is to lay down an Element with the color **Shadow** selected. Then in the next layer, you lay down the exact same element only this time you give it a color like **Blue** or **Metal**. This will essentially fake-out a shadow for your top element.

If you are interested in changing the colors of any of the included elements, see the Tips appendix, page C-5 for more info.

Direction

Some elements allow for eight different directions of movement. Simply click on the arrow pointing the way you wish the element layer to move. Clicking on the stop sign in the middle of the direction arrows will lock the elements in place with the direction you have selected.

Action

This option is available in select elements. you can choose between **Moving** and **Not Moving**. Different elements have unique movements.

Screen Position

Some elements allow for nine different placements of positions. Simply click on the small square in the screen position you would like the element to be centered at.

Rotation

Certain elements, such as Broken Circle allow for rotation. Click on the **Rotate** button to make the element rotate in the direction indicated by the clockwise and counter-clockwise arrows. The element will rotate about its screen position.

Certain elements, such as > Star Field < are layer independent elements and are designated as such by the > < symbols. These elements should not be repeated in subsequent layers as they are 'global' elements and cannot be layered. Adding more than one layer of the same type of this element will place them in the exact same position and will only increase rendering time.

Keep in mind that the more Elements you select the slower your animation will render and the more memory you'll use.

Mr. Camera

Selecting **Mr. Camera** allows you to adjust your camera's position relative to your logo and elements. If you select

to move your camera **a little closer**, your logo will appear a bit bigger in frame. If you select **back a little**, your logo will appear smaller in frame. Leaving it set **at default position** will reach a happy medium.

Moving the camera a little closer is a good way to make your logo appear larger when it has an angled Hold Position.

Render Mode

Selecting the **Render Mode** button allows you to set the rendering quality settings LightWave will use when it renders your animation. These settings are different depending on the version of LightWave you are using.

Medium Res. Preview is set as the default (but can be changed in the Edit Defaults section) so you won't have to wait so long if you render a test frame. Be sure to set it to **Broadcast Quality** before you save out your final animation script.

When Med Res. Preview is chosen, your animation will be rendered in Medium Res. If you have LightWave 3.0, Antialiasing will be set to Off, The Aspect Ratio will be set to Toaster/D2 and Field Rendering will be turned off.

If you really want a short wait for a test frame, select **Low Resolution Preview**.
Low Res Preview will render your animation in Low

Res. If you have LightWave 3.0, Antialiasing will be set to Off, The Aspect Ratio will be set to Toaster/D2 and Field Rendering will be turned off.

Broadcast Quality sets all the appropriate LightWave settings to make your animation look the best it can while keeping your render times low.

If you choose Broadcast Quality and you are a LightWave 2.0 user, your animation will be rendered in high Res. If you have LightWave 3.0, Antialiasing will be set to Low, The Aspect Ratio will be set to Toaster/D2 and Field Rendering will be selected.

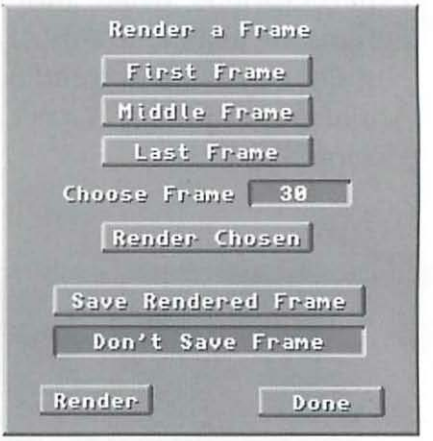
For those of you who want a little more control, choose **Expert Options**, where additional LightWave render options are available. Any of LightWave's rendering resolutions can be chosen and 3.0 users can select Antialiasing options, Aspect Ratio, Field Rendering and Motion Blur.

Chapter 5
Rendering Tools

This section deals with the different rendering options available in WaveMaker. By selecting options here, you can render any one frame or an entire animation, build storyboards and create sequences of scenes to render.

Note: For these tools to function, LightWave and ARexx must be running simultaneously.

Rendering Single Frames



Selecting the **Render a Frame** button will let you tell LightWave to render an individual frame from the currently loaded WaveMaker script directly from WaveMaker. You have the option of rendering either the first, middle, last or any chosen frame in an animation. You will have to save your WaveMaker script every time you make a change to it if you want the change to show up using **Render a Frame**. WaveMaker will prompt you when it is necessary to do this. Simply choose the frame you wish and press the **Render** button. Select **Done** to exit the requester.

You can save the individual frames that you render here by selecting **Save Rendered Frame** before rendering.

After selecting **Save Rendered Frame**, you will be presented with a requester with the following options:

Save as Framestore

Selecting this button will present a requester asking for the path and file name for the saved Framestore. Only enter the base name for the Framestore. When saved, it will appear as *Framenumber*.FS.*name*

Save as RGB Image

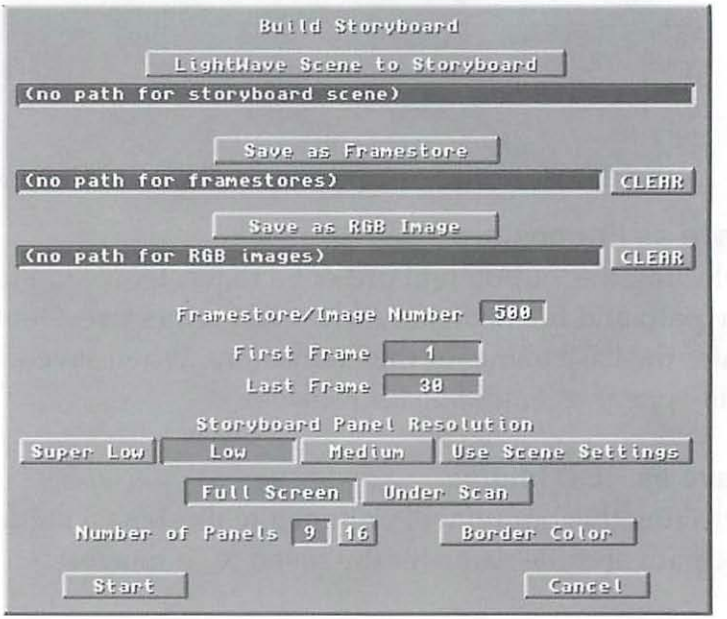
Selecting this button will present a requester asking for the path and file name for the saved RGB image.

You can save both a Framestore *and* an RGB image by selecting both options. Pressing the **Clear** button to the right of either data field will clear the entry.

Building a Storyboard

One of WaveMaker's most unique features is the **Storyboard** option. This feature will render an image (Framestore and/or RGB) that will be divided into panels showing different frames of an animation. You can choose any LightWave scene to storyboard. You can tell if the scene was generated by WaveMaker by the .LWScene extension.

This is perfect for checking out the 'feel' of an animation without having to render the whole thing. It is also a handy tool to show clients so they can see how an animation may look.



You can select the following options in the Build Storyboard panel:

LightWave Scene to Storyboard

Pressing this button will present a file requester asking you to choose the LightWave scene you wish to storyboard.

Save as Framestore

Selecting this button will present a requester asking for the path and file name for the saved Framestore. Only enter the base name for the Framestore. When saved, it will appear as *Framenumber*.FS.*name*

Save as RGB Image

Selecting this button will present a requester asking for the path and file name for the saved RGB image.

You can save both a Framestore *and* an RGB image by selecting both options. Pressing the **Clear** button to the right of either data field will clear the entry.

Framestore/Image Number

Entering a number here will save the rendered Framestore/Image with the specified number.

First Frame

This is the first frame that will be taken into account when creating a storyboard. It defaults to the value entered in the LightWave scene file but can be changed here.

Last Frame

This is the last frame that is taken into account when creating a storyboard. This frame will become the last panel in the storyboard. It defaults to the value entered in the LightWave scene file but can be changed here.

Storyboard Panel Resolution

This is the resolution that each panel in the storyboard will be rendered at. Low Res is the default and is appropriate for most cases. You can choose between **Super Low**, **Low**, **Medium** and **Use Scene Settings**. If you choose **Use Scene Settings**, the panels will be rendered with whatever options are selected in the scene.

Additionally, you need to select either the **Full Screen** or **Under Scan** option. **Full Screen** will fill the entire frame with the storyboard. If you are viewing it on a monitor

with no underscan option, the edges of the image will be hidden by the monitor.
Selecting **Under Scan** will render the storyboard so that you can see the edges on your monitor without having to use an underscan feature of the monitor.

Number of Panels

You can choose either **9** or **16** panels for the storyboard image. For long animations, you may wish to use 16.

Border Color

Clicking on the **Border Color** button will present a color requester for you to choose the color of the border in between the panels.

Once all of these options are set, clicking on the **Start** button will begin the storyboard process.

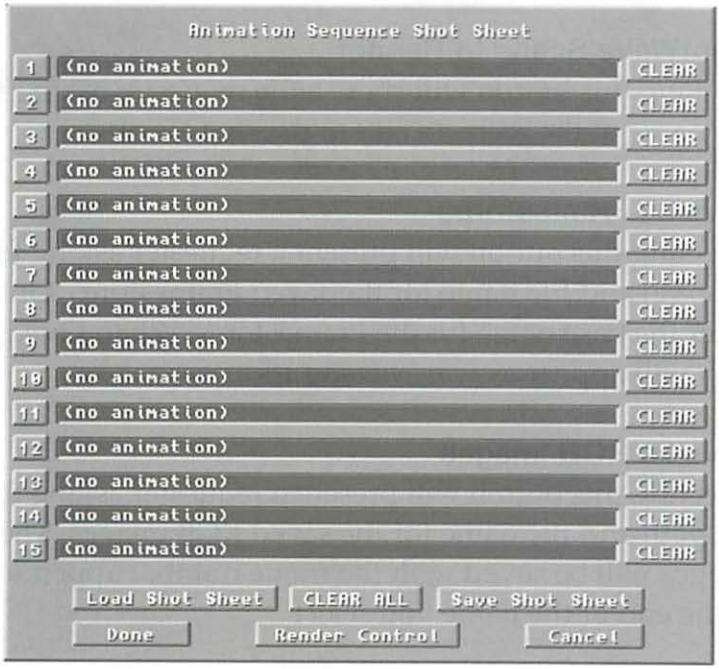
The storyboard is created by taking the number of frames as specified by the First Frame/Last Frame values and dividing it by the number of panels selected.

WaveMaker then instructs LightWave to render the appropriate frames and saves each one to a directory. After all of the needed images are rendered and saved, WaveMaker then takes each image and places it in the correct panel in a special storyboard scene. The last frame of the animation is always placed in the last panel. This image is rendered out as the storyboard. The finished image will always be rendered out in Medium Resolution.

Creating a Sequence of Scenes to Render

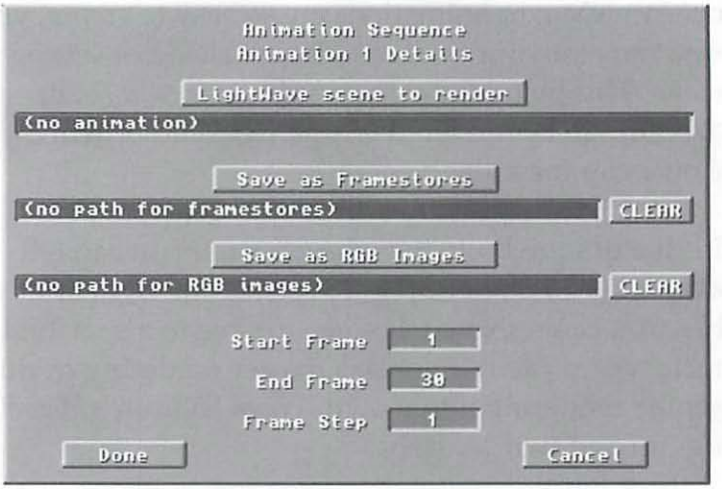
Since WaveMaker animations are so easy to create, you'll spend most of your time rendering instead of setting up a scene. This being the case, you could easily set up several scenes to be rendered for the weekend or while you are on a trip for a few days.

With the unique Build Sequence feature you can tell WaveMaker to render up to 15 scenes one right after the other. You can set up each scene to save to a specified directory and can use normal Toaster rendering or dual machine rendering if you own *Axiom Software's WaveLink* program and two Toasters.



Clicking on the **Build Sequence** button shows the Animation Sequence Shot Sheet panel. Down the left side of the panel are 15 numbered buttons. Clicking on

these buttons presents the requester for that numbered animation. The following options are available:



LightWave Scene to Render

Clicking this button will show a file requester asking for the name of the scene to add to the shot sheet.

Save as Framestores

Selecting this button will present a requester asking for the path and file name for the saved Framestores. Only enter the base name for the Framestores. When saved, they will appear as *Framenumber*.FS.*name*

Save as RGB Images

Selecting this button will present a requester asking for the path and file name for the saved RGB images. These images will be saved with the frame number appended to the end of the name you select.

You can save both Framestores *and* RGB images by selecting both options. Pressing the **Clear** button to the right of either data field will clear the entry.

Start Frame

This is the first frame that will be rendered for this scene. It defaults to the value entered in the LightWave scene file but can be changed here.

End Frame

This is the last frame that will be rendered for this scene. It defaults to the value entered in the LightWave scene file but can be changed here.

Frame Step

This value determines which frames are rendered. If 2 is entered here, every other frame of the animation will be rendered. If 3 is entered, every third frame will be rendered. This value defaults to the value entered in the LightWave scene file but can be changed here.

When all options have been set, click on **Done** to return to the Shot Sheet where you can continue to add scenes. Clicking on **Cancel** will return to the Shot Sheet with no changes made.

Clicking **Clear** next to any entry in the Shot Sheet will clear that entry.

Additionally, the following options are available at the bottom of the Shot Sheet panel:

Load Shot Sheet

This will allow you to load a previously saved Shot Sheet.

CLEAR All

Selecting this will clear all of the entries in the Shot Sheet. you will first be asked if you wish to do so in case

you clicked on this button by accident.

Save Shot Sheet

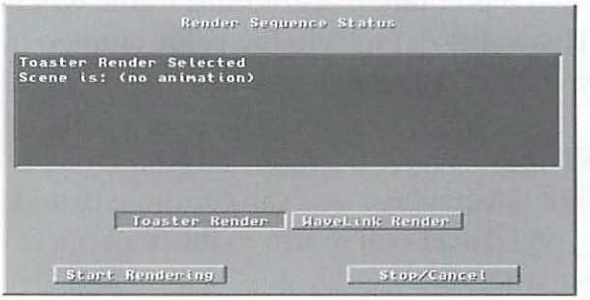
Selecting this will allow you to save a Shot Sheet.

Done

Clicking on this button will return you to the main WaveMaker screen.

Render Control

Clicking this button will present the Render Sequence Status requester which will give you information about the current scene being rendered.



You can also choose **Toaster Render** or **WaveLink Render**. Choose WaveLink Render if you own *Axiom's WaveLink* and wish to take advantage of dual machine rendering.

Note: WaveLink will only allow for the saving of either Framestores *or* RGB Images. If you have both options selected in WaveMaker, WaveLink will default to saving Framestores.

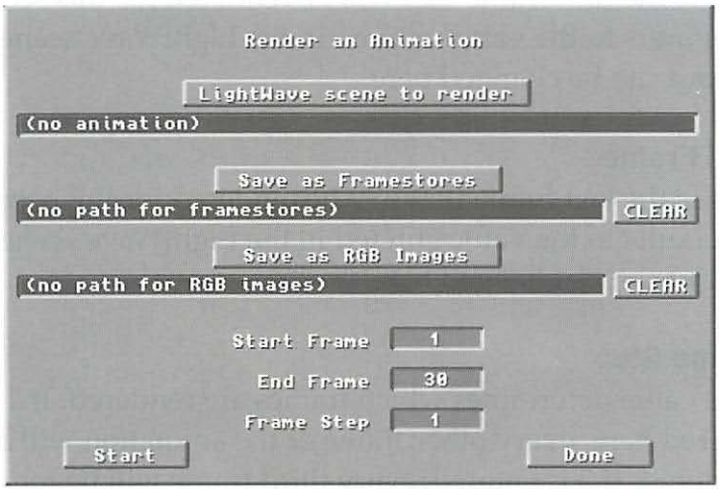
Pressing **Start Rendering** will begin the rendering of your Shot Sheet. Click on **Stop/Cancel** to abort the rendering process.

Cancel

Selecting this button will return to the main WaveMaker screen without making any changes to the Shot Sheet.

Rendering a Single Animation

Selecting the **Start Animation** button allows you to load and render any single LightWave animation. As with **Build Sequence**, the following options are available when you click on this button:



LightWave Scene to Render

Clicking this button will show a file requester asking for the name of the scene to render.

Save as Framestores

Selecting this button will present a requester asking for the path and file name for the saved Framestores. Only enter the base name for the Framestores. When saved, they will appear as *Framenumber*.FS.*name*

Save as RGB Images

Selecting this button will present a requester asking for the path and file name for the saved RGB images. These images will be saved with the frame number appended to the end of the name you select.

You can save both Framestores *and* RGB images by selecting both options. Pressing the **Clear** button to the right of either data field will clear the entry.

Start Frame

This is the first frame that will be rendered for this scene. It defaults to the value entered in the LightWave scene file but can be changed here.

End Frame

This is the last frame that will be rendered for this scene. It defaults to the value entered in the LightWave scene file but can be changed here.

Frame Step

This value determines which frames are rendered. If 2 is entered here, every other frame of the animation will be rendered. If 3 is entered, every third frame will be rendered. This value defaults to the value entered in the LightWave scene file but can be changed here.

When all options have been set, click on **Start** to begin rendering the animation or **Done** to return to the main WaveMaker screen without rendering. All options will still be set and you can begin rendering at any time by reentering the panel and clicking **Start**.

Chapter 6
WaveMaker Scripts

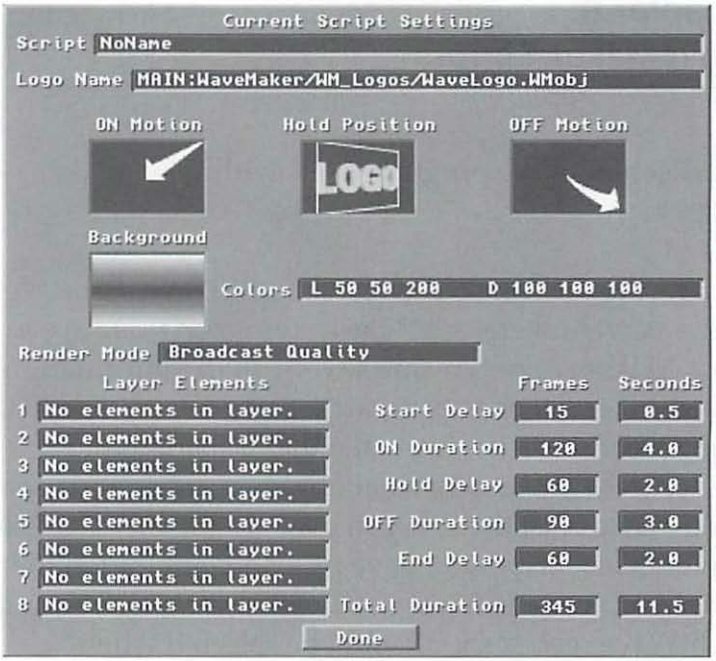
This section of the program deals with WaveMaker scripts.

What's the difference between a LightWave scene file and a WaveMaker script? Basically, when you save a WaveMaker script, you are saving all the information WaveMaker needs to generate a LightWave scene file. A LightWave scene file is the file that is loaded into LightWave so it knows what objects it needs and what to make those objects do. If you ever get the message 'Not a WaveMaker script' you have probably attempted to load a LightWave scene file instead of a WaveMaker script. LightWave scenes should only be selected when WaveMaker specifically asks for one while creating a Storyboard, building a Shot Sheet or rendering a single animation.

Checking the Status of your script

Clicking on the **Script Status** button will present a large information panel that will tell you everything you need to know about your script including motions, positions, timing info, element layers, background options and render mode choice.

All of the fields are information only fields and can not be edited. Choose the appropriate options in their respective menus if you need to change any of the information.



Loading and Saving Scripts

Click the **Load Script** button to load any script that has previously been saved.

When you are satisfied with all the choices you have made for elements, durations, etc., click the **Save Script** button to save a WaveMaker script. At the same time, WaveMaker will generate a LightWave scene file with the same name as the script, but with a .LWScene appended to the file name.

Chapter 7
Using Online Help

Near the bottom of the main screen can be found the **How WM Works** button. Selecting this button will bring up a 'mini manual' that will take you through the WaveMaker process from start to finish.

Click **Next Page** to advance a page, and **Back a Page** to go to the previous page. Clicking **End** will return to the main screen.

Clicking **How WM Works** again will take you back to the page you were on when you exited.

WaveMaker also offers context sensitive help. To activate this feature, press the **Help** key on the keyboard. You will receive a message near the top of the screen indicating that the help feature is active. If you now click on any main button down the left side of the screen, the appropriate page of the mini manual will be shown. Clicking the Help key a second time will deactivate the feature.

```
*** WaveMaker Help Active ***
(Press Help to deactivate)
```

This option can only be activated on the main screen when no panels are open.

Chapter 8
WaveMaker Options

Editing Program Defaults

You have the option of configuring WaveMaker to look in certain directories when you load and save certain files. You can also set default options for other features such as durations, render mode, etc.

For path defaults used in loading and saving, selecting the button above the data field will display a file requester where you can pick the default path. You should only select the drive and directory names. Do not select a file name.

Click on the **Edit Defaults** button to bring up the Edit WaveMaker Defaults panel. The following buttons appear:

Logo

Clicking this button lets you enter a default path where WaveMaker will look when loading logos.

Durations

Clicking on this button will present the Duration requesters where you may edit the default duration settings.

Backgrounds

Selecting this button lets you enter a default path for WaveMaker to find background images.

Render Mode

Clicking on this button will present the Render Mode requester where you can choose the default render quality settings.

Render a Frame

Clicking this button lets you enter a default path where WaveMaker will look when saving individual frames using the **Render a Frame** feature.

Storyboard

Selecting this button will let you set up default paths for WaveMaker to find scenes and save paths for Framestores and Images when using the **Storyboard** feature.

Build Sequence

Choosing this button will allow you to enter default paths for WaveMaker to find scenes and save paths for Framestores and Images when using the **Build Sequence** feature.

Start Animation

Choosing this button will allow you to enter default paths for WaveMaker to find scenes and save paths for Framestores and Images when using the **Start Animation** feature.

Load Script

This button lets you enter a default path for WaveMaker to load scripts from.

Save Script

This button allows you to enter a default path for WaveMaker to save scripts and LightWave scene files.

Smart Anim.

Selecting this button will allow you to choose the path for where you wish to save the script/scene of a Smart Anim.

Prefabs

Selecting this button will allow you to choose the path for where you wish to save the script/scene of a Prefab Anim.

Miscellaneous Defaults

Selecting this option lets you change such settings as the LightWave version to be used and whether temporary storyboard images are deleted after use.

When you have changed all the defaults you wish to, click on the **Save Defaults** button to write a new WaveMaker.Config file. Each time you run the program your new defaults will be used. Additionally, you can change defaults in the middle of a WaveMaker session and keep on working. Your new defaults will take place

immediately.

Click on **Done** to use any changes temporarily. The next time WaveMaker is started or the **Reset All** option (see below) is chosen, all defaults will return to the last saved.

Resetting Program Defaults

Clicking on the **Reset All** button will ask you if you wish to return all defaults to the last saved defaults. If you answer **Do It**, WaveMaker will reload the last saved WaveMaker.Config file, resetting any unsaved changes.

Chapter 9
Quitting WaveMaker

Select the **Quit WaveMaker** button to exit the program. You will be asked to confirm.

Make sure to save any script that you have been working on before you quit.

Chapter 10
Appendices

Appendix A
Tutorial

Since WaveMaker is so incredibly easy to use, only a short tutorial is needed.

We are going to create a simple animation using WaveMaker's tools for building an animation from scratch. We will then view an image using WaveMaker's storyboard feature to render a sample of the animation:

- Start WaveMaker by clicking on the WaveMaker icon. If this is the very first time you have run WaveMaker, you will be asked to register the program and choose the version of LightWave that you will be using with WaveMaker.

If you have enough Chip RAM to run LightWave and WaveMaker (see the Chip RAM requirements on page 3 of the manual), load LightWave now.

- Click on the **Logo** button to present a file requester with which to load a logo. If you wish to use a logo of your choice, select it with the requester, else load the logo called WaveLogo.WMobj in the WM_Logos directory.

- A requester will appear asking you if the logo has already been processed. Click **Yes**. If you selected a different logo, WaveMaker will automatically process the logo (scale to fit the WaveMaker world).

- Click on the **Motions** button. The Select Motions panel will appear. Select the **ON Motions** button and choose Motion 20. Select **Done**.

Select the Hold Positions button and choose Position 07. Select **Done**.

Finally, choose the **OFF Motions** button and choose Motion 08. Click **Done** and then **Done** again.

- Click the **Durations** button to see what the durations of the animation are. Leave all of the setting at their default for now. If you wish later, you can edit the timing information here. Click on **Done** to return to the main screen.

- Choose the **Backgrounds** button and select **Gradient**. When the Gradient Backgrounds requester appears, select Gradient 1. Leave the **Dark Color** and **Light Color** at their defaults of black and bright blue. Click **Done** when finished, then **Done** again.

- Select the **Elements** button to add some elements behind the logo. Let's keep it simple and just add a few: Select Layer 1 and when the Elements requester appears choose **Diagonal Streaks**.

When the lower element options panel appears, choose **Shadow** as the color and leave everything else at its default setting. Select **Done**, then **Done** again to return to the Element Layers panel.

Choose Layer 2 and select **Diagonal Streaks** again. Change the color to **Metal** and leave everything else at its default. Click **Done** and **Done** again.

When you return to the main Element Layers panel, you will notice that layers 1 and 2 inform you as to their con-

tents. Everything should read the same except for the color of the elements. Click **Done** to return to the main screen.

- Click on the **Mr. Camera** button. Since our logo is slanted at its hold position, select **a little closer** to move the camera in on the logo. Click **Done** to return to the main screen.

- Finally, choose **Render Mode** to select a resolution for the animation. Select **Medium Res. Preview** if not already selected. Click **Done** to return.

You've just set up your first WaveMaker animation! "Pretty easy!" I bet you're saying to yourself.

At this point, we have some options: If you cannot run LightWave and WaveMaker at the same time, click on Save Script to save the WaveMaker script you have just created and generate a LightWave scene file.

After saving, you can quit WaveMaker, enter the Toaster and LightWave, load and render some frames from the scene to see what it looks like.

The real fun comes in if you have LightWave loaded at the same time. If so, it's time to see what a frame looks like:

- Select **Render a Frame**. You will be asked to save the script before you can continue. Call the script **WM.TEST**.

- After the script is saved, the scene is automatically loaded into LightWave.

Click on the **Middle Frame** button to select the middle frame of your animation as your test frame. Click **Render**.

LightWave will now render frame 202 of this animation (assuming you didn't change the duration settings. When finished, on your program monitor, you should see the WaveMaker logo in the middle of the screen in your selected hold position. Also, the WaveMaker screen has returned to your monitor.

Let's continue this tutorial a bit farther...

- Press Cancel to leave the Render a Frame panel and return to the main screen.

- Choose **Storyboard**. When the Storyboard panel appears, click on the button labeled **LightWave Scene to Storyboard**. Select the file named **WM.TEST.LWScene**. Leave all other setting at their defaults.

If you wish to save the resulting image, choose either **Save as Framestore** or **Save as RGB Image** and enter a name for the image. Also, select an image number in the Framestore/Image number field for the resultant image.

Click on **Start** to render the storyboard. In a short time, you will have a 9 panel storyboard to get a feel for the animation.

Well, you have now gone through the more complicated features of WaveMaker! If this was your first attempt at using the program, we hope you realize how incredibly easy it is. In no time you'll be making animations like the pros!

Appendix B
TroubleShooting

Below are some of the commonly asked questions and concerns about WaveMaker:

- I click on Render a Frame and the screen dims, but the requester does not appear. What's wrong?

Make sure you have no requester open in LightWave asking for input. Also, it is very important to actually be in LightWave. It is an easy mistake to have the Toaster running but LightWave is not activated. Simply activate LightWave and it will continue.

- After I select **Render a Frame** and am asked to save the script, WaveMaker updates the LightWave scene and the requester disappears but the Render a Frame requester takes a long time to appear.

What's happening is that LightWave is loading an image, and depending on the size of the image, it may take a little bit before LightWave tells WaveMaker that it is ready to continue.

- Why does it take so long for WaveMaker to update a LightWave scene?

Actually, it doesn't take WaveMaker long at all. What you are waiting for is the scene to be reloaded into LightWave! A complicated scene with lots of images and objects will take longer than a simple scene. If you are doing a lot of script saving, you can quit out of

LightWave and WaveMaker will not have to update the LightWave scene when it saves a script.

- I am using an image sequence for a background, but I keep getting a message in LightWave stating that it can't find my images.

When you select an image sequence in WaveMaker, you must delete any of the numbers at the end of the file name when you tell WaveMaker which images you want. For instance, if you have a sequence of images named Bony.001, Bony.002, etc., you must enter Bony. as the file name for the sequence. LightWave cannot find the sequence if you named it anything else.

Additionally, if you are using LightWave 2.0, and you are rendering frames 50-100 for instance, you must have a sequence of images with those numbers in order for LightWave to find them (ie. Bony050, Bony051, etc.).

- When I try to render a frame from WaveMaker, nothing happens.

Most likely a requester is open in LightWave. If you are jumping in between WaveMaker and LightWave, and you opened a requester that is asking for input (such as a Load Object requester), LightWave cannot accept commands from WaveMaker. All you need to do is cancel the requester and LightWave will be able to accept commands from WaveMaker.

Also, if you are a 2.0 LightWave user, make sure that you are not in the Layout screen. LightWave 2.0 cannot

receive ARexx commands when in this screen and must be returned to the main screen.

- The gradients I create with WaveMaker never seem to match the colors I choose for the light and dark colors in the gradients panel. Why not?

WaveMaker uses LightWave to generate its gradients. The way LightWave generates gradients is to use the inside of a giant sphere. You can pick the colors at the top and bottom of the sphere as well as above and below the equator line. When you look out the 'window' of the camera (your screen), you can never see the top and bottom of the sphere. It is because of this that the *exact* colors you choose for the top and bottom of the gradient will not be exactly what you see when the image is rendered out.

If you do need exact colors, you can create a gradient spread in ToasterPaint or ToasterCG and use the saved image as a background image in WaveMaker.

- When I click on the **Abort** button while rendering, the Abort button does not push in. Has anything happened?

WaveMaker has sent the abort command to LightWave, however, if it was loading a large scene, you may not notice anything happen momentarily until LightWave can return WaveMaker's call. It is only necessary to click on the button once, and after a short wait, LightWave will respond.

• Why does pressing the ESC key in LightWave abort the current frame rendering, but WaveMaker keeps sending the next frame?

You must abort a scene rendering from WaveMaker and not from LightWave. If you abort in LighWave, WaveMaker does not realize you wish to end the process and just thinks that LightWave finished rendering a frame.

• When I use **Expert Options** and turn on motion blur, my moving elements get a strange long blur every once in a while.

Because of a bug in LightWave 3.0, using motion blur on moving elements is not recommended. LightWave causes a large blur to appear when repeated moving elements are 'snapped' back into their start positions. If you wish your logo to be motion blurred, a good trick is to render the elements alone as a background sequence and then render the motion blurred logo on top of that. See **Appendix C. Tips & Tricks** for more info.

• After clicking **Abort** for a scene rendering in WaveMaker, I flip over to LightWave and notice that the scene is still rendering. Why isn't WaveMaker aborting the scene?

If a scene does not abort after hitting the abort button in WaveMaker, you are most likely using LightWave 2.0. LightWave 2.0 does not have the ability to receive an abort command, so you must press **Abort** in WaveMaker, then go to LightWave and press the **ESC** key to tell

LightWave to stop rendering.

- When I am in LightWave and I press **Left Amiga - n**, nothing happens.

You have loaded LightWave first. If there is nothing on the Workbench screen open (like a shell window) or another program running (like WaveMaker), LightWave will close the Workbench and you will not be able to use the Left Amiga key combinations to flip screens. For best results, run WaveMaker first, then LightWave.

- Why doesn't my logo enter at the frame I have chosen for my delay duration?

Different aspect ratios of logos can throw off the delay by a few frames. This is common and to be expected.

- I have **Field Rendering** selected in **Expert Options**, but whenever I render a frame, I do not see the field rendering effect. Why?

WaveMaker is smart enough to know that if you render a single frame, you will most likely want to see it without the field rendering applied. If you have selected it and render out an animation, it will be turned on. WaveMaker only turns it off temporarily for individual frames. If you must see a frame with field rendering, render the frame directly from LightWave.

- How do I select to save frames to both my client and

host machine when I am using *WaveLink* to render my animation?

When using **WaveLink Render**, you can only select a single drive that is attached to the Host machine for the saving of your images.

- I have a large scene I created with WaveMaker, but when I render it out, it seems as if I am missing some of my objects.

LightWave has a limit to the number of objects it can use. If you are using LightWave 2.0, you have a limit of 150 objects. If you are sing LightWave 3.0, you have a limit of 400 objects. Once WaveMaker uses up the number of objects allowed, it will no longer add any to the scene even though you may have more selected. WaveMaker will inform you that it has reached the maximum number of objects as it is generating the LightWave scene file.

Be careful if you are using the Confetti element. Confetti is actually composed of 135 separate objects which can add up fast in a scene.

Appendix C
Tips & Tricks

There are many neat tricks that you can accomplish with WaveMaker. The following are some of the best we've seen to date:

• WaveMaker can be used to generate images that can be used as background images in future WaveMaker animations. Here's how:

1. Choose a background option.
2. Add some element layers over the background.
3. Choose Low Res. or Med Res. preview Render Mode.
4. Test render a frame. Do not choose to save it.
5. Change elements and background options if you wish and test render until you like the image.
6. For best results, Choose Broadcast Quality (2.0 LightWave users) or Expert Options with Med. Res., Low Antialiasing and no Field Rendering (3.0 LightWave users) Render Mode.
7. Render a Frame again saving the resulting image.

The final image can now be loaded as a background image for future projects.

• It's easy to create shadows for any of your element layers. Let's say you want to create blue horizontal streaks with shadows moving behind your logo. Here's how:

1. Select Layer 1 in the Element Layers panel.

2. Choose the element **Horizontal Streaks**.
3. Select a speed, thickness, number and **Shadow** as the element color. Click on **Done**.
4. Click on **Done** in the Elements panel to return to the Element Layers panel.
5. Select layer 2 in the Element Layers panel.
6. Choose the element **Horizontal Streaks**.
7. Select the exact same speed, thickness and number as in layer 1. Select **Blue** as the color. Click on **Done**.
8. Click on **Done** in the Elements panel to return to the Element Layers panel.

Because each consecutive layer is in front of the previous layer, they appear slightly offset from the camera point of view. This is the reason that fake shadow can work. If you wish to have more of a shadow, simply select a closer (higher number) layer for your element. For instance, the shadow can be in layer 1, while the blue element is in Layer 8.

- When you render an animation with either **Build Sequence** or **Start Animation**, it is possible to render the scene backwards. Simply make your **Start Frame** larger than your **End Frame** and use a negative **Frame Step**! As a matter of fact, WaveMaker is smart enough to make your Frame Step negative if you enter a larger value for Start Frame.

Why would you want to render your scene backwards? Let's say you have a Toaster at home and a Toaster at work, each running at different speeds and you need to have a large animation rendered quickly. You also have a version of WaveMaker for each machine.

Instead of guessing how many frames each machine can render in a given time and setting up machine 1 to render 1-500 and machine 2 to render 501-1000, have machine 1 render frames 1-1000 and machine two render frames 1000-1 backwards. This way they will meet somewhere in the middle and each machine will keep working instead of rendering all of its frames and waiting for the other to finish.

If needed, you can even render a Storyboard backwards if you want to see an animation layed out in reverse.

- Image sequences can be used to composite multiple animations together. This is handy if you have a lot of objects needed in a scene, but you do not have enough ram to render it all in one pass or you use a standard set of flying elements as your trademark in all of your logo animations.

Sequences are also handy when you have multi-part logos such as two words that form the company name. you may wish each to fly on with opposite ON motions and end up together in the middle of the frame.

How does all this work? Simple. First let's talk about creating a standard flying element image sequence to be used in all of your flying logo animations:

1. Set up an animation with flying elements but no logo.
2. Render a couple of test frames, or better yet, create a storyboard to see what the whole animation looks like.
3. When happy, choose **Broadcast Quality** Render Mode

and render your animation, saving your images to a hard drive.

4. Now that you have your standard elements rendered already, it is a simple matter to select **Sequence** as your Background and choose this sequence. Insert any logo you wish and viola! you're done. No need to select and render all those elements.

Now, let's say you want 16 layers of elements in an animation. It should be easy to see how to do this:

1. Set up 8 layers of elements and render out the images.
2. Load up this sequence as a Background sequence and set up 8 layers of elements to place 'on top' of the sequence.

Want 24 layers of elements? I think you now get the picture.

What about that two part logo? The one thing that you will need to know is how to get into Modeler and break the logo apart.

Before beginning, make sure that you are working with an object that has been loaded into WaveMaker and has been scaled and renamed *Object*.WMobj.

Basically, you need to load the processed logo into Modeler and select one word of the logo. Cut and paste it in the same position into another layer and save it out as a separate object. Save the original layer also as a separate object in its original position. See the Modeler manual for details if you are unsure of this process.

Once you have the separate objects, follow these steps to

composite your two part animation:

1. Set up an animation with the first half of the logo fly -ing on in an appropriate manner.
2. Do not use an OFF motion for this half of the logo. Let it hold at the end.
3. Make sure the Total Animation duration will be long enough to include the second part of the logo flying in and holding.
4. Choose your render mode and save this animation as a sequence of images to your hard drive.
5. Load this sequence in as a background sequence and set up a new animation of the second half of the logo flying in with the corresponding ON motion and duration.

One thing that is needed for using sequences is hard drive space! You have to store all of those images somewhere. This is where large hard drives or removable media can come in handy.

- Don't like the colors of some of the elements? Simply load the element you want into LightWave and change the surface colors to suit your need. In order for WaveMaker to find the new element, it has to be saved with the same name, so you may want to save a version of the element using a different name first.

- When designing objects/logos to be used with WaveMaker, make sure to model them so that when seen in the Back view (LW 2.0) or the Face view (LW 3.0), the logo is able to be read. This will assure they are facing the correct way for WaveMaker /LightWave to use them.

- Use Pixel Pro to quickly create logos to be used with WaveMaker from scanned or camera captured artwork.

- There is a drawer called WM_Surfaces which contains some nice surfaces that can be loaded and saved with your objects/logos.

- A good rule of thumb: Any logos designed to be used with WaveMaker should not be thicker than one-half the width of the logo. In general, it is best to keep logos no thicker than one-fourth the width.

- There is an element called The Disc. It is a disc that has a fractal noise pattern mapped onto its face. Always use this element as the farthest, or lowest numbered, element, otherwise it will hide any elements behind it.

As with element color, you can change the surface that is mapped onto The Disc. Try wrapping an image onto the disc to speed up rendering times.

Appendix D
More about Elements

Element Messages

When you have any elements selected, the Element Layers panel will inform you of the name of the element and the options you have chosen. The options will appear in abbreviated form. Following is a list of the abbreviations and what they mean:

VSlow	Very Slow
Slow	Slow
Med	Medium
Fast	Fast
VFast	Very Fast
Hor	Horizontal
Vert	Vertical
Diag	Diagonal
Rot	Rotating
NoRot	Non Rotating
Move	Moving
NoMove	Non Moving
Up	Up
Down	Down
R2L	Right to Left
L2R	Left to Right
LL2UR	Lower Left to Upper Right
UR2LL	Upper Right to Lower Left
UL2LR	Upper Left to Lower Right

LR2UL	Lower Right to Upper Left
CW	Clockwise
CCW	Counter Clockwise
Few	Few
Many	Many
UL	Upper Left
TC	Top Center
UR	Upper Right
RC	Right Center
LR	Lower Right
BC	Bottom Center
LL	Lower Left
LC	Left Center
Cent	Center
Red	Red
Yellow	Yellow
Blue	Blue
White	White
Shadow	Shadow
Metal	Metal
VSmall	Very Small
Small	Small
Big	Big
VBig	Very Big
VThin	Very Thin
Thin	Thin
Fat	Fat
VFat	Very Fat

Copying Element Layers

To make it easy to copy one layer of elements to another, WaveMaker uses a keyboard shortcut.

Press the **c** key and a message will appear asking which layer you wish to copy from. Enter the appropriate number on the keyboard and the message will change asking which layer you wish to copy to. Enter the desired number on the keyboard and the layer will take on the attributes of the copied layer.

This is extremely useful when you are making minor changes between layers such as changing the element color to Shadow.

Appendix E
Technical Support

Having problems using WaveMaker? First check the extensive Troubleshooting section starting on page B-1 to see if your problem is covered. If not, check to see if your problem is repeatable and give our tech support team a call.

Axiom Software's Tech Support can be reached at:

Axiom Software, Inc
1668 E. Cliff Road
Burnsville, MN 55337-1300
USA

VOICE (612) 894-0596
FAX (612) 894-1127

between the hours of 9 AM and 5 PM Central Standard Mon-Fri.

Appendix F
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